# VIVOTEK

**S series**

# TB9331-E
## Thermal Bullet Network Camera

720x480 • NETD < 50 mk • H.265 • Trend Micro IoT
Security • -50°C ~ 60°C • IP66/67 • IK10 • NEMA 4X

VIVOTEK's TB9331-E is an H.265 outdoor thermal bullet network camera designed to detect people and vehicles in wild weather, difficult lighting conditions, and any situation that create poor visibility. With heat based thermal imagery and lens options of 8.8mm or 19mm, the TB9331-E supports long distance monitoring of vehicles up to 4,500m away even in complete darkness or under challenging climate conditions such as fog, rain, smoke and dust.

The TB9331-E offers 720x480 resolution with an uncooled thermal sensor and VIVOTEK's VCA (Video Content Analysis) to enhance perimeter protection and boarder security. This camera is also embedded with Trend Micro IoT Security software to provide users with higher levels of network protection. With an IP66, IP67, IK10 and NEMA 4X-rated rugged design, the TB9331-E will withstand shock &vibration, humidity, dust, and even extreme temperature fluctuations to maintain stable and reliable video no matter how harsh the environment.

## Key Features

- Uncooled VOx Infrared Detector
- 720x480 Resolution
- NETD < 50 mk @ F1.0
- H.265 Compression Technology
- Trend Micro IoT Security within Standard Warranty Period
- Two-way Audio
- Supports ONVIF Standard to Simplify Integration and Enhance Interoperability
- UL Certification
- Weather-proof IP66/IP67, Vandal-proof IK10 and NEMA 4X-rated Housing
- VIVOTEK VCA (Video Content Analysis) Support



Normal Camera          Thermal Camera
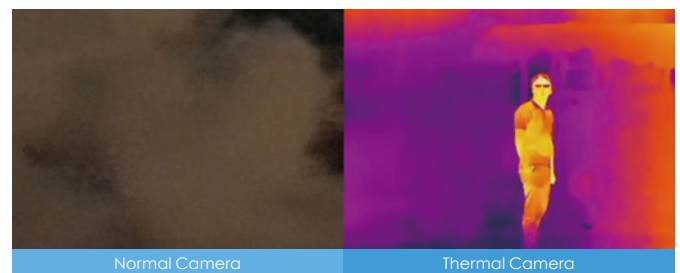
Infrared thermal image through fog and smoke.

# Technical Specifications

| | |
|---|---|
| Model | TB9331-E(8.8mm)<br>TB9331-E(19mm) |

## System Information

| | |
|---|---|
| CPU | Multimedia SoC (System-on-Chip) |
| Flash | 128MB |
| RAM | 512MB |

## Camera Features

| | |
|---|---|
| Image Sensor | Uncooled VOx infrared detector |
| Maximum Resolution | Effective pixels: 720x480<br>Image scale up to: 960x640 |
| Lens Type | Fixed-focal (Thermal Lens) |
| Focal Length | TB9331-E(8.8mm): f = 8.8 mm<br>TB9331-E(19mm): f = 19 mm |
| Aperture | F1.0 |
| Auto-iris | Fixed-iris |
| Field of View | TB9331-E(8.8mm):<br>69.6° (Horizontal)<br>49.7° (Vertical)<br>79.8° (Diagonal)<br>TB9331-E(19mm):<br>35.7° (Horizontal)<br>24.2° (Vertical)<br>42.3° (Diagonal) |
| Pan/Tilt/Zoom Functionalities | ePTZ: 20x digital zoom<br>(4x on IE plug-in, 5x built-in) |
| On-board Storage | Slot type: MicroSD/SDHC/SDXC card slot<br>Seamless Recording |

## Video

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|---|---|
| Compression | H.265, H.264, MJPEG |
| Maximum Frame Rate | 30 fps @ 720x480 |
| Maximum Streams | 4 simultaneous streams |
| Sensitivity | NETD < 50 mk |
| Video Streaming | Adjustable resolution, quality and constant bit rate control, Smart Stream II |
| Image Settings | Time stamp, text overlay, flip & mirror, configurable brightness/contrast/sharpness |

## Audio

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|---|---|
| Audio Capability | Two-way Audio (full duplex) |
| Compression | G.726, G.711 |
| Interface | External microphone input<br>External line output |

## Network

| | |
|---|---|
| Users | Live viewing for up to 10 clients |
| Protocols | IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, NTCIP, SSL, TLS, CIFS/SMB |
| Interface | 10 Base-T/100 Base-TX Ethernet (RJ-45)<br>*It is highly recommended to use standard CAT5e & CAT6 cables which are compliant with the 3P/ETL standard. |
| ONVIF | Supported, specification available at www.onvif.org |

## Intelligent Video

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|---|---|
| Video Motion Detection | Five-window video motion detection |
| VCA | Line crossing detection, field detection, loitering detection |
| VADP Package | Genetec package, Trend Micro IoT Security, Stratocast |

## Alarm and Event

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|---|---|
| Alarm Triggers | Motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection, audio detection, MicroSD card life expectancy |
| Alarm Events | Event notification using digital output, HTTP, SMTP, FTP, NAS server and MicroSD Card File upload via HTTP, SMTP, FTP, NAS server and MicroSD card |

## General

| | |
|---|---|
| Connectors | RJ-45 cable connector for 10/100Mpbs Network/PoE connection<br>Audio input<br>Audio output<br>DC 12V power input<br>AC 24V power input<br>Digital input*1<br>Digital output*1<br>BNC<br>RS485 |
| LED Indicator | System power and status indicator |
| Power Input | DC 12V<br>AC 24V (Redundant Power)<br>IEEE 802.3at PoE Class 4 |
| Power Consumption | PoE: Max. 14 W<br>DC 12V: Max. 11 W<br>AC 24V: Max. 12.4 W |
| Dimensions | TB9331-E(8.8mm):<br>121 x 121 x 471.2 mm (with junction box)<br>TB9331-E(19mm):<br>121 x 121 x 452.2 mm (with junction box) |
| Weight | TB9331-E(8.8mm): 2,080g<br>TB9331-E(19mm): 2,030g |
| Casing | IP66, IP67, IK10(Metal Housing), NEMA 4X |
| Safety Certifications | CE, LVD, FCC Class A, VCCI, C-Tick, UL, EN50121-4 |
| Operating Temperature | Start Temperature:<br>-40°C ~ 60°C (-40°F ~ 140°F)<br>Working temperature:<br>-50°C ~ 60°C (-58°F ~ 140°F) |
| Humidity | 90% |
| Warranty | 36 months |

## System Requirements

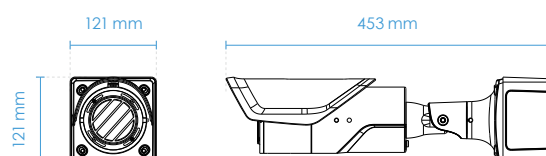| | |
|---|---|
| Operating System | Microsoft Windows 8/7<br>Mac 10.12 (Chrome only) |

# Technical Specifications

| | |
|---|---|
| Web Browser | Internet Explorer 10/11<br>Chrome version 58 or above |
| Other Players | VLC: 1.1.11 or above<br>QuickTime: 7 or above |

### Included Accessories

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|---|---|
| Others | Quick installation guide, warranty card,<br>screw pack, alignment sticker, junction box |

### Dimensions

**• TB9331-E(8.8mm)**



121 mm    472 mm    121 mm
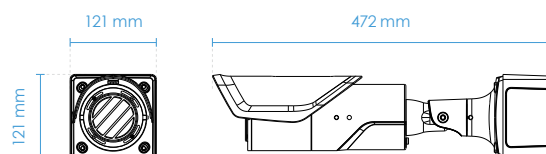
**• TB9331-E(19mm)**



121 mm    453 mm    121 mm

# Compatible Accessories

## Mounting Kits

| AM-312<br>Pole Mount Adapter | AM-412<br>Corner Mount Adapter | AM-719<br>Junction Box (Standard Package) |
|---|---|---|

# Coverage Table

| Resolution | | 720x480 | |
|---|---|---|---|
| **Focal Length** | | 8.8mm | 19mm |
| **FOV** | Horizontal | 69.6° | 35.7° |
| | Vertical | 49.7° | 24.2° |
| **Human**<br>1.8 x 0.5 m (5 x 1 ft) | Detection (1.5 pixels) | 262 m (859 ft) | 566 m (1,856 ft) |
| | Recognition (6 pixels) | 66 m (216 ft) | 142 m (465 ft) |
| | Identification (12 pixels) | 33 m (108 ft) | 71 m (232 ft) |
| **Vehicle**<br>4 x 1.5 m (13 x 4 ft) | Detection (1.5 pixels) | 800 m (2,624 ft) | 1,729 m (5,672 ft) |
| | Recognition (6 pixels) | 200 m (656 ft) | 432 m (1,416 ft) |
| | Identification (12 pixels) | 100 m (328 ft) | 216 m (708 ft) |

Note: The detection ranges are calculated using Johnson's criteria and may vary under different weather conditions.